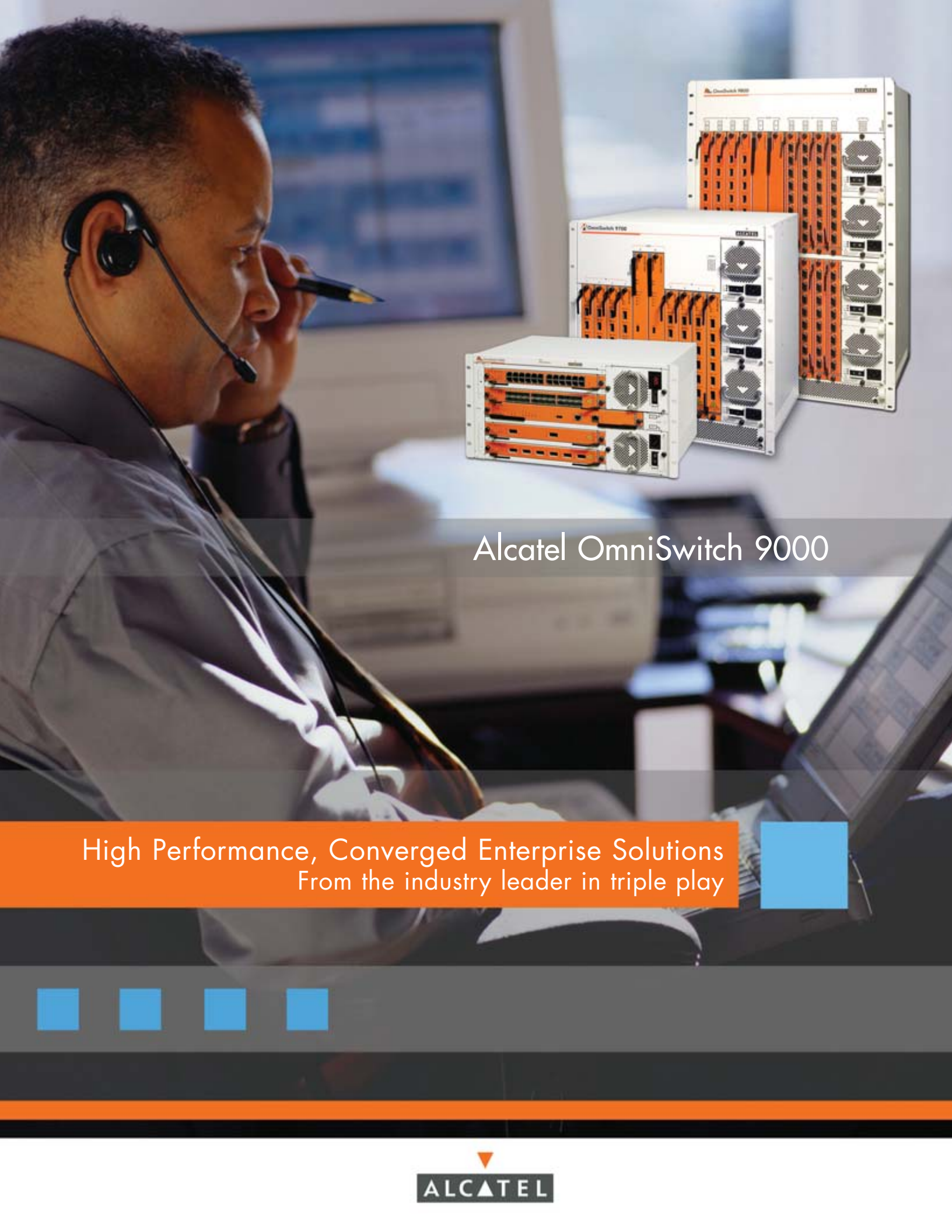


Alcatel OmniSwitch 9000

High Performance, Converged Enterprise Solutions
From the industry leader in triple play

ALCATEL

The award winning Alcatel OmniSwitch 9000 family (OS9000s) offers a range of full-featured, high-performance 10-Gigabit Ethernet switches, including a low-cost entry point chassis. The OS9000s deliver future-proof solutions with advanced security and QoS features for use in small-to-large enterprise cores, in the aggregation layer and in wiring closets with flexible power-over-Ethernet support. The OS9000s are a part of Alcatel's end-to-end enterprise switch family.

The Alcatel OmniSwitch 9000s are designed to anticipate future network needs with wire-rate processing for IPv4/IPv6 and support for unicast and multicast applications such as voice-over-IP and video collaboration. The switches support future edge requirements as Gigabit Ethernet to the desktop becomes commonplace and demand for power-over-Ethernet (PoE) capability increases.

High performance for converged networks

The OS9000 family is designed for resiliency and exceptional network performance to support real-time triple-play applications such as voice-over-IP (VoIP), data, and video applications. Applications are supported by:

- High-port density
- High-capacity switching and traffic aggregation for business network cores
- Highly-available switching fabric with a unique load sharing capability[1]
- Multi-layer security
- Wire speed packet classification

"This switch best supports the SNMP standard and was the only participant to supply a web interface from which we could perform many tasks normally accomplished on a CLI."

OS9700, Winner of *Network Computing's* Editor's Choice Award

Simplified network management

Network management is simplified by providing users with commands and user interfaces they are familiar with through use of the same Alcatel Operating System (AOS) that is available on all Alcatel OmniSwitch plus complete integration with the Alcatel OmniVista Network Management System (NMS). Alcatel also offers other management options such as WebView, which is a web-based user-friendly element manager and SNMP for third-party network management systems.

Security

Alcatel secures the network with proactive and reactive capabilities that are provided through Alcatel Access Guardian and the Alcatel OmniVista 2770 Quarantine Manager. Alcatel's Access Guardian enables proactive, network-wide security through auto-sense authentication that runs on the AOS, preventing unauthorized network access. The Alcatel OmniVista 2770 Quarantine Manager provides reactive security by automatically handling malicious attacks by taking intrusion information and dynamically reconfiguring the network to contain the attack.

[1] Requires dual CMMs in either the OS9700 or the OS9800

Alcatel OmniSwitch 9000

The OmniSwitch 9000 Family

OmniSwitch 9600

The OmniSwitch 9600 (OS9600) is Alcatel's low-cost, entry-point LAN switch solution that provides the small enterprise the best performance-to-price available today. It also future-proofs the investment since the network can be expanded to support a larger core inexpensively by reusing its current OS9000 cards in the larger chassis offered by the OS9700 and OS9800. By offering the same features and capabilities as the other OmniSwitch 9000 switches, more enterprise networks are able to afford a core that supports converged voice, video and data and other applications.

OmniSwitch 9600

The Alcatel OmniSwitch 9600 is a five-slot chassis supporting one chassis management module (CMM) and four network interface (NI) modules. It offers a wide range of GigE and 10GigE interfaces providing the industry's most flexible combination of Ethernet interfaces for use in a wiring closet. It also offers power-over-Ethernet to support IP telephones, WLAN access points and video cameras. VoIP and video performance is also enhanced in an OmniSwitch-based network through the use of policy-based QoS using OmniVista NMS PolicyView.

OmniSwitch 9700

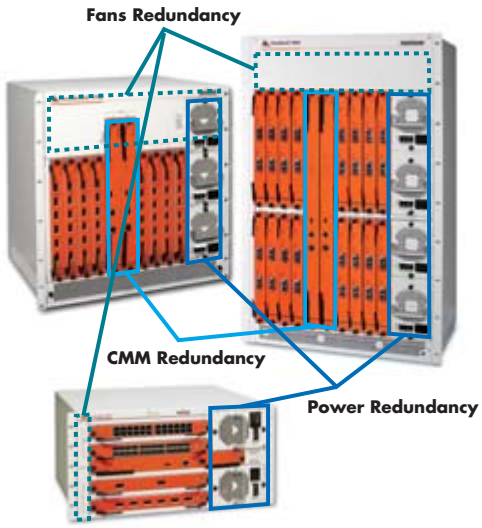
OmniSwitch 9700

The OmniSwitch 9700 is a high-density chassis with two slots for control and 8 slots for network interfaces supporting an aggregation of up to 192 GigE ports or 48 10GigE ports. Designed for smart continuous switching operation, the two center slots are dedicated to chassis management modules (CMMs) allowing redundant configurations. CMMs provide two critical functions – active/standby resiliency for control and active/active redundancy for the switching fabric. The Alcatel OmniSwitch 9700 was recently named as *Network Computing's* Editor's Choice for its superb manageability and ease of use.

OmniSwitch 9800

OmniSwitch 9800

For those applications where a much larger port density is required, the OS9800 doubles the OS9700 capabilities with 16 available slots supporting an aggregation of up to 384 GigE ports or 96 10GigE ports along with two slots for control (Plus, the OS9800 has sub-components such as the power supply unit (PSU), fan tray and network interface cards (NICs) that are all compatible and interchangeable with other OS9000s, reducing the cost of keeping spares and lowering total cost of ownership.)



OmniSwitch 9000 full redundancy

PRODUCT FEATURES AND BENEFITS

The new OS9000 switch family addresses the needs of converged networks: high availability, wire-speed performance, high density GigE and 10GigE, and dramatically improved network response time. The OS9000 family provides an easy and economical way to upgrade or deploy a new Ethernet network. The large number of ports makes the OmniSwitch 9000s suitable for two- or three-tier network designs. This is possible because of the high performance capability and density of GigE and 10GigE. The OS9000s also future proofs the network with native and full support of IPv4/IPv6 for addressing migration from IPv4 to IPv6 or new IPv6 deployments.

The OS9000s are engineered to be deployed in the:

- Enterprise core
- Data center
- Wiring closet
- Aggregation layer

Enterprise core / Data center

The OS9000s address enterprise network core requirements with:

- Enhanced VoIP and video performance with policy-based QoS using OmniVista PolicyView
- Future-proof support for multi-media applications with wire-rate multicast
- Enhanced forwarding - improves network response time through hardware-based forwarding at first packet and elimination of CPU solicitation for ACL/QoS demands
- High-availability in network designs with dual-aggregation switch through extensive support of L2/L3 protocols for smart use of network topology redundancy

Aggregation layer

The OS9000s address aggregation requirements with:

- Higher 10G port density than competitive products
- Increased options for wire-rate GigE ports (copper, fiber, PoE)

Wiring closet connectivity

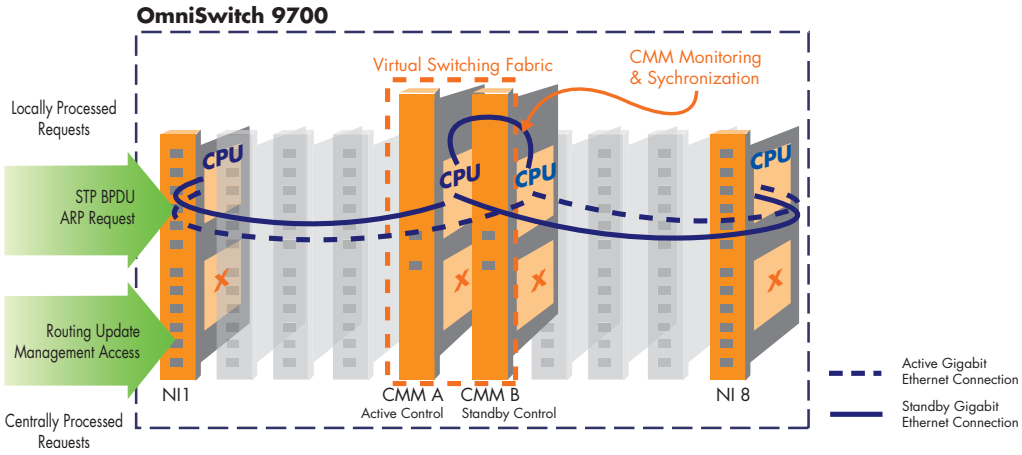
The OS9000 addresses wiring closet requirements with:

- Full power-over-Ethernet support for IP telephones, WLAN access points and video cameras with up to 2400W of power through dedicated power shelves
- Isolation of intruders with OmniVista 2770 Quarantine Manager
- Extensive support of AOS user-oriented features such as user authentication, learned port security (LPS), group mobility, and port mapping

Highest availability for the enterprise

The OmniSwitch 9000s carry on Alcatel's tradition of providing the highest availability possible to support the demands of IP communications and mission-critical applications, all at an enterprise price. Providing the highest availability to the enterprise ensures that users have constant access to resources and services at all times. To ensure the highest levels of availability, the OmniSwitch 9000s provide:

- Distributed architecture, where each NI autonomously supports functions, such as source learning, Spanning Tree functions, and L2/L3 forwarding
- Redundant modules and sub-components (CMMs[1], fans and PSUs)
- Hot swappable modules and sub-components (NIs, CMMs[1], fan trays, PSUs, SFPs and XFPs)
- Hitless loading of optional software (routing / security), without re-booting
- Image rollback to automatically re-load previous configurations and software versions



Principle of operation for distributed intelligence

Resiliency – maximized network uptime

Network resiliency is critical to providing network availability. The OS9000s offer a superior architecture with no single point of failure and a sub-second fail-over in its redundant configuration. If there is a CMM failure the OmniSwitch 9700 and 9800 are able to provide continuous operation with no loss of connections when configured with dual CMMs. Existing L2/L3 traffic, including voice conversations, will continue seamlessly without interruption.

For single CMM configurations, network resiliency is achieved through switch redundancy, network path redundancy, and the L2/L3 protocols for smart use of the switch and path redundancy. In this configuration, the OS9600 has the best price / performance ratios.

[1] Requires dual CMMs in either the OS9700 or the OS9800

Distributed intelligence

Unlike other switches on the market, Alcatel OmniSwitch are unique in that they are able to provide Smart Continuous Switching by using a design where most processes are distributed and handled on the network interfaces themselves, relegating the CMM to a coordination role. A bottleneck is avoided by not using a centralized control plane architecture where the CMM – the key management module – is responsible for all processing. The distributed design allows key processes such as Spanning Tree to maintain a fully operational state, even during a sub-second CMM failover.

Multi-layer security

With networks under constant attack from the outside world and even from within the company, a network needs to provide easy access to users and resources, yet possess extensive security features that can be managed across a global enterprise. The OS9000s provide multi-layer security with a range of security features that can be implemented in the wiring closet, the core, and throughout the network. These include:

- User authentication
- Virtual local area networks (VLANs)
- Quarantine VLANs
- Access control lists (ACLs)
- Restricts user ports from sending control traffic (BPDU, RIP, OSPF, BGP)
- Prevents IP source address spoofing
- Authenticated switch access
- Encryption for secure management (SSHv2 / HTTPs / SNMPv3)
- Denial of service protection

Multi-layer security enables the building of sophisticated hardware and software-based solutions that can be integrated with policy-based management and other technologies such as smart cards, PKI, and biometrics for enhanced security implementations. For secure management there are many features integrated into the architecture including authenticated user access, SNMPv3 and SSL for encrypted sessions, and partitioned management for multi-tiered access and granular network administration.

Advanced network policies for secure & converged networks

Advanced network policies ensure that users and applications get the priority and performance they need with ease of use management that extends across the enterprise. The OS9000s feature state-of-the-art ASIC-based technology for intelligent, wire-speed everything including switching, routing, ACLs, QoS, traffic redirection and load balancing.

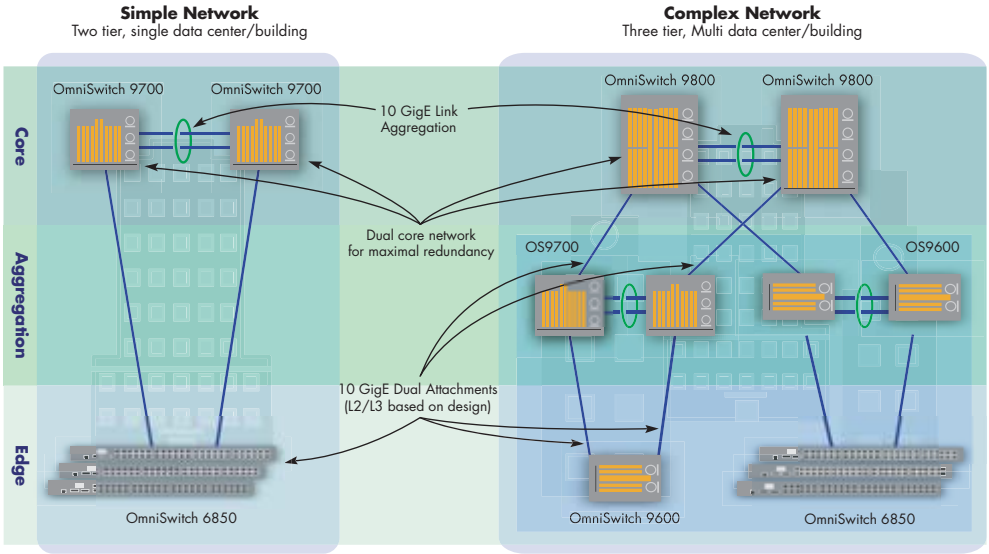
The OS9000s provide application aware switching for layers 2, 3, and 4 and the most advanced classification, prioritization, and queuing schemes in the industry. It also supports industry classification standards including 802.1Q/p, TOS, and DiffServ, and is enhanced with complementary features such as extensive QoS mappings and re-tagging of prioritization. And, the OS9000s don't require additional hardware or specialized software to operate at wire-speed – from the first packet!

Alcatel OmniVista and OneTouch manageability

OmniVista, the Alcatel voice and data network management platform, is a comprehensive set of network management applications and tools that simplify the management of Alcatel networking devices. OmniVista allows managers to monitor network activity, configure and troubleshoot each device, as well as manage an entire network from a single platform. It offers unified management, network-wide visibility, element management, VLAN management, policy-based QoS, centralized management of secure switch access, quarantine capabilities to prevent security breaches by isolating potential threats – all within a scalable architecture.

OmniVista features OneTouch manageability enabling network managers to quickly configure and manage the switches in their network. For example, OneTouch QoS, a feature of the Alcatel policy management software, allows network managers to quickly assign QoS priorities to network traffic based on the characteristics of different applications. With "one-click," every Alcatel switch in the network is automatically configured.

Alcatel's OmniVista Quarantine Manager proactively and defensively identifies and isolates viruses and network attacks before they wreak havoc on the network and automates the response for a self-healing network.



The OS9000s offer service level and policy-based configurations with support for LDAP directories enabling flexible integration with existing platforms and allowing extended offerings. RMON and sFlow (TM) support is also included with a choice of interfaces for administrators – a command line interface (CLI), SNMPv3, a fully editable text-based configuration file, and WebView, our standard web-browser interface.

The OmniSwitch 9000s are certified as "IPv6 Ready".

IPv6 support

The OS9000 family provides full IPv6 support with hardware-based forwarding for wire-rate speeds, classification and tunneling to address various corporate and government requirements for IPv6. Unlike most switches that support IPv6, the performance of the OS9000s is unaffected by enabling IPv6 processing whether deploying IPv4, IPv6, or IPv4/IPv6. These switches address the U.S. Federal government Department of Defense (DoD) requirement that IPv6 be supported for migration by 2008 and addresses other countries' requirements including:

- Ability to connect to the IPv6 backbone
- Use of IPv6 across public organizations
- Ability to interconnect the IPv6 "island" through an existing IPv4 network through hardware-based tunneling
- Ability to control IPv6 flows with extensive QoS/ACL policies

The OS9000 family provides hardware-based classification (access control lists (ACLs) and quality of service (QoS), forwarding and management for IPv6. More importantly, it provides a way to transition from an existing IPv4 network with support of tunneling (configured, 6-in-4, and ISATAP[2]). The OS9000s are able to work with the existing AOS switches, and support the full suite of unicast routing protocols, multicast registration and routing protocols, QoS/ACLs and tunneling.

First Green switch in the market – RoHS compliancy

With the OmniSwitch 9000 family, Alcatel will be the first switch manufacturer to be in compliance with the new European Community's directive - Restriction on Hazardous Substances in Electrical and Electronic Equipment (RoHS) – which requires electronic equipment to be free of six hazardous substances by July 2006. Although only required for European Union countries, the rest of the world will benefit from these "green" switches by lessening the amount of hazardous substances that find its way into the environment.

[2] Check with Alcatel for availability

Ordering information

Bundles

OS9600-CB-A	OS9600 base bundle, to include OS9600 chassis, fan tray, 1 CMM, 1 PSU
OS9600-RCB-A	OS9600 redundant bundle, to include OS9600 chassis, fan tray, 1 CMM, 2 PSUs
OS9700-CB-A	OS9700 base bundle, to include OS9700 chassis, fan tray, 1 CMM, 2 PSUs
OS9700-RCB-A	OS9700 redundant bundle, to include OS9700 chassis, fan tray, 2 CMM, 3 PSUs
OS9800-CB-A	OS9800 base bundle, to include OS9800 chassis, fan tray, 1 CMM, 3 PSUs
OS9800-RCB-A	OS9800 redundant bundle, to include OS9800 chassis, fan tray, 2 CMM, 4 PSUs

Chassis and power supplies

OS9600-CHASSIS	OS9600 chassis & fan tray
OS9700-CHASSIS	OS9700 chassis & fan tray
OS9800-CHASSIS	OS9800 chassis & fan tray
OS9-PSU-0600A	600W AC PSU (100-240V) for OS9000
OS9-PSU-0600D	600W DC PSU (48V) for OS9000
OS9-IP-SHELF	External PoE rack for the OS9000 chassis. Rack to include 1 PSU
OS9-IPS-0600A	600W AC Power over Ethernet PSU (100-240V) for use with OS9-IPSHELF only
OS9-IPS-0390A	390W AC Power over Ethernet PSU (100-240V) for standalone use with OS9600 only (mounting brackets included)
OS9-IPS-0230A	230W AC Power over Ethernet PSU (100-240V) for standalone use with OS9600 only (mounting brackets included)

Management and fabric modules

OS9600-CMM[3]	Chassis Management Module for the OS9600 & OS9700
OS9700-CMM[3]	Chassis Management Module for the OS9600 & OS9700
OS9800-CMM	Chassis Management Module for the OS9800

Network interface cards

OS9-GNI-U24	24-port GigE SFP
OS9-GNI-C24	24-port GigE (10/100/1000) RJ45
OS9-GNI-P24	24-port GigE (10/100/1000) RJ45 w/PoE
OS9-XNI-U2	2-port 10GigE XFP
OS9-XNI-U6	6-port 10GigE XFP

Transceivers

SFP-GIG-EXTND	Gigabit Ethernet optical transceiver (SFP MSA - Gigabit extender up to 2km)
SFP-GIG-LH70	Gigabit Ethernet optical transceiver (SFP MSA – up to 70km)
SFP-GIG-xxCWD60	Gigabit Ethernet CWDM optical transceiver (SFP MSA – up to 60km – 8 wavelengths)
SFP-GIG-LH40	Gigabit Ethernet optical transceiver (SFP MSA – up to 40km)
SFP-GIG-LX	Gigabit Ethernet optical transceiver (SFP MSA – up to 10km)
SFP-GIG-SX	Gigabit Ethernet optical transceiver (SFP MSA – up to 550m)
XFP-10G-ZR80	10 Gigabit Ethernet optical transceiver (XFP MSA – up to 80km)
XFP-10G-ER40	10 Gigabit Ethernet optical transceiver (XFP MSA – up to 40km)
XFP-10G-LR	10 Gigabit Ethernet optical transceiver (XFP MSA – up to 10km)
XFP-10G-SR	10 Gigabit Ethernet optical transceiver (XFP MSA – up to 2km)

[3] The CMM for the OS9600 and OS9700 are identical.

Technical Specifications

Layer-2 Switching

VLAN	Port based, IEEE 802.1Q VLANs
	Advanced VLAN Classification: MAC, protocol, IP subnet
	IEEE 802.1ad VLAN Stacking (aka QinQ)
Spanning Tree	IEEE 802.1D Spanning Tree Protocol (STP) – 1998 / 2004 edition
	IEEE 802.1w Rapid Spanning Tree Protocol (RSTP) – 2001 edition
	IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) – 2002 / 2005 edition
	Support of single and multiple instances for STP & RSTP
	BPDU Watch guard
Link aggregation	Support for static aggregate (a.k.a., OmniChannel)
	Support for dynamic aggregate (IEEE 802.3ad)
Auto-negotiation	Speed (10, 100 and 1000 Mbps) and duplex mode (half or full)
Traffic control	IEEE 802.3x
DHCP	DHCP Relay, Option 82 & Snooping (including port-MAC-IP binding)

Layer-3 Routing (IPv4)

IP Routing	Static routing
	RIP v1 & v2
	OSPF v2
	BGP v4 (including graceful restart)
Multicast	IGMP v1, v2 & v3 snooping
	PIM-SM
	PIM-DM
	DVMRP
Network Protocol	Generic UDP relay (including DHCP Relay)
	TCP/IP stack
	ARP
Resilience	VRRP v3

Layer-3 Routing (IPv6)

IP Routing	Static routing
	RIP ng
	OSPF v3
	Multiprotocol Extensions for BGP-4[2]
Multicast	MLD snooping
	PIM-SM[2]
	PIM-DM[2]
Network Protocol	DHCP Relay (including generic UDP relay)
	TCP/IP stack
	NDP
Resilience	VRRP v3

[2] Check with Alcatel for availability

Layer-3 Routing (IPX)

IP Routing	Static routing
	RIP/SAP

Convergence

Priority queues	Eight hardware based queues per port
Traffic prioritization	Flow-based QoS in hardware (L1-L4) Internal & external (a.k.a., remarking) prioritization
Traffic redirection	Policy-based routing Server load balancing (including health monitoring of servers)
Bandwidth management	Flow based bandwidth management, ingress policing / egress shaping Port based egress shaping
Queue management	Configurable de-queuing algorithm ■ Strict Priority ■ Weighted Round Robin ■ Deficient Round Robin
Power-over-Ethernet	IEEE 802.3af (requires OS9-GNI-P24 & PoE shelf) Maximum power of 2400W (600W per PSU) using the OS9-IP-SHELF Maximum power of 230W / 390W using the OS9-IPS-0230A[4] / OS9-IPS-0390A[4]

Security

Traffic filtering	Flow-based filtering in hardware (L1-L4)
User authentication	IEEE 802.1X, with Group Mobility & Guest VLAN support MAC Based Authentication for non 802.1X host Authenticated VLAN (web and telnet based authentication)
Switch protocol security	MD5 for RIPv2, OSPFv2 and SNMPv3 SSHv2 for secure CLI session (including Secure Copy) SSL for secure HTTP session
Switch management	Local authentication database Remote authentication RADIUS, TACACS+, LDAP and ACE servers

Management

Configuration mode	Command Line Interface, Telnet/SSH for remote CLI access Web-base (HTTP / HTTPS) SNMP v1/v2c/v3 for complete NMS integration
Management access type	Serial console port for local & remote (modem dial up) access (RJ45) Out-of-band Ethernet access (10/100/1000 RJ45) In-band Ethernet access
System maintenance	Port mirroring (one-to-one, many-to-one) RMON (Remote Monitoring): statistics, history, alarm & events sFlow (TM) Local & remote logging (Syslog) Detailed statistics / alarm/debug information per process L3 OAM (ICMP Ping and Traceroute) NTP (Network Time Protocol) Internal flash (Compact Flash) to feature: ■ working directory ■ certified directory
System file transfer	Xmodem FTP (File Transfer Protocol)

[4] Only supported with OS9600

Service and support

Default warranty	1 year on hardware, 90 days on software
Support Basic	One year - 7x24 phone. Includes e-service web access, software releases and repair and return of hardware to be completed in 10 business days from receipt.
Support Plus	One year - 7x24 phone. Includes e-service web access, software releases and advanced shipment for next business day arrival of replacement hardware.

[2] Check with Alcatel for availability

Specifications

Network Interface

All modules are hot swappable and can be used in any available NIs slot

24–port 1000BaseX (SFP)
24-port 10/100/1000 BaseT (RJ45)
24-port PoE 10/100/1000BaseT (RJ45)
2-port 10GBaseX (XFP)
6-port 10GBaseX (XFP)

Dimensions

OmniSwitch 9600

- Height: 9.6 in (24.4 cm – 5.5 RU)
- Width: 17.45 in (44.3 cm)
- Depth: 14.45 in (36.7 cm)
- Weight (fully loaded chassis): <55 lbs (25 kg)

OmniSwitch 9700

- Height: 19.25 in (48.9 cm – 11 RU)
- Width: 17.4 in (44.2 cm)
- Depth: 14.75 in (37.5 cm)
- Weight (fully loaded chassis): <130 lbs (60 kg)

OmniSwitch 9800

- Height: 29.75 in (75.6 cm – 17 RU)
- Width: 17.4 in (44.2 cm)
- Depth: 14.75 in (37.5 cm)
- Weight (fully loaded chassis): <190 lbs (85 kg)

Power Supply & Power Consumption

600 W AC Power Supply

- Input voltage: 100-240 VAC auto-ranging
- Operating frequency: 47-63 Hz
- Maximum input current:
- 7.5A at 110 VAC; 3.65 A at 220 VAC

Power Consumption

- OS9600 Chassis & fan trays: <42 W
- OS9700 / OS9800 Chassis & fan trays: <80 W
- OS9600-CMM / OS9700-CMM: <27W
- OS9800-CMM: <40W
- OS9-GNI C24/P24/U24 : <55W
- OS9-XNI-U2: <36W
- OS9-XNI-U6: <67W
- PSU efficiency: > 0.75

Environmental requirements

Operating temperature:

- 32° to 113°F (0° to 45°C)

Storage temperature:

- 14° to 158°F (-10° to 70°C)
- Humidity (operating and storage):
- 10% to 90% non-condensing

Heat dissipation (fully loaded w/ U6 & redundancy):

- OmniSwitch 9600: 1,715 BTU/hr, max
- OmniSwitch 9700: 3,412 BTU/hr, max
- OmniSwitch 9800[2]: 6,870 BTU/hr, max

IEEE Standards

- IEEE 802.1ad (VLAN Stacking)
- IEEE 802.1D (STP)
- IEEE 802.1p (CoS)
- IEEE 802.1Q (VLANs)
- IEEE 802.1s (MSTP)
- IEEE 802.1w (RSTP)
- IEEE 802.1X (Port based NAC)
- IEEE 802.3i (10BaseT)
- IEEE 802.3u (Fast Ethernet)
- IEEE 802.3x (Flow Control)
- IEEE 802.3z (Gigabit Ethernet)
- IEEE 802.3ab (1000BaseT)
- IEEE 802.3ac (VLAN Tagging)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3af (Power over Ethernet)
- IEEE 802.3ae (10G Ethernet)

IETF Standards

BGP

- RFC 1771-1774/2842/2918/3392 BGP v4
- RFC 1269/1657 BGP v3 & v4 MIB
- RFC 3065 BGP AS Confederations
- RFC 2385 BGP MD5 Signature
- RFC 2042 BGP New Attribute
- RFC 2439 BGP Route Flap Damping
- RFC 2796 BGP Route Reflection
- RFC 1965 BGP AS Confederations
- RFC 1997/1998 BGP Communities Attribute
- RFC 1966 BGP Route Reflection
- RFC 1403/1745 BGP/OSPF Interaction

OSPF

- RFC 1253/1850/2328 OSPF v2 & MIB
- RFC 1765 OSPF Database Overflow
- RFC 3623 OSPF Graceful Restart
- RFC 2154 OSPF MD5 Signature
- RFC 1587/3101 OSPF NSSA Option
- RFC 2370/3630 OSPF Opaque LSA

RIP

- RFC 1058 RIP v1
- RFC 1722/1723/2453/1724 RIP v2 & MIB
- RFC 1812/2644 IPv4 Router Requirement
- RFC 2080 RIP ng

IP Multicast

- RFC 1112 IGMP v1
- RFC 2236/2933 IGMP v2 & MIB
- RFC 3376 IGMPv3
- RFC 1075 DVMRP
- RFC 2934 PIM MIB for IPv4
- RFC 2362 PIM-SM
- RFC 2365 Multicast
- RFC 2715/2932 Multicast Routing MIB

IPv6

- RFC 2292/2373/2374/2460/2462 IPv6
- RFC 2464/2553/2893/3493/3513 IPv6
- RFC 3542/3587 IPv6
- RFC 2461 NDP
- RFC 2463/2466 ICMP v6 & MIB
- RFC 1886 DNS for IPv6
- RFC 2452/2454 IPv6 TCP/UDP MIB
- RFC 2740 OSPF for IPv6
- RFC 2858 MP Extensions for BGP-4[2]
- RFC 3056 IPv6 Tunneling

Manageability

- RFC 854/855 Telnet & Telnet options
- RFC 1215 Convention for SNMP Traps
- RFC 2616 /2854 HTTP & HTML
- RFC 2096 IP MIB
- RFC 1212/2737 MIB & MIB-II
- RFC 1643/2665 Ethernet MIB
- RFC 2668/3636 IEEE 802.3 MAU MIB
- RFC 1573/2233/2863 Private Interface MIB
- RFC 1155/2578-2580 SMI v1 & SMI v2
- RFC 1157/2271 SNMP
- RFC 1213/2011-2013 SNMP v2 MIB
- RFC 1901-1908/3416-3418 SNMP v2c
- RFC 2570-2576/3411-3415 SNMP v3
- RFC 2667 IP Tunneling MIB
- RFC 2674 VLAN MIB

Security

- RFC 2104 HMAC Message Authentication
- RFC 1321 MD5
- RFC 2284 PPP EAP
- RFC 2139/2866/2867/2620 RADIUS

Accounting & Client MIB

- RFC 2138/2865/2868/3575/2618 RADIUS

Authentication & Client MIB

- RFC 2869/2869bis RADIUS Extension
- RFC 2228 sFTP
- RFC 959/2640 FTP

Quality of Services

- RFC 896 Congestion control
- RFC 3635 Pause Control
- RFC 1122 Internet Hosts
- RFC 2474/2475/2597/3168/3246 DiffServ

Others

- RFC 3176 sFlow
- RFC 826/903 ARP & Reverse ARP
- RFC 925/1027 Multi LAN ARP / Proxy ARP
- RFC 951 Bootp
- RFC 1493 Bridge MIB
- RFC 919/922 Broadcasting internet datagram
- RFC 1518/1519 CIDR
- RFC 1541/1542/2131/3396/3442 DHCP
- RFC 2132 DHCP Options
- RFC 2131/3046 DHCP/BootP Relay
- RFC 792 ICMP
- RFC 791/894/1024/1349 IP & IP / Ethernet
- RFC 2251 LDAP v3
- RFC 1305/2030 NTP v3 & Simple NTP
- RFC 1191 Path MTU Discovery
- RFC 3060 Policy Core
- RFC 1151 RDP
- RFC 1757/2819 RMON & MIB
- RFC 950 Subnetting
- RFC 793/1156 TCP/IP & MIB
- RFC 768 UDP
- RFC 2338/3768/2787 VRRP & MIB
- RFC 1256 ICMP Router Discovery

[2] Check with Alcatel for availability

Emissions / Agency Approvals

- CISPR 22 Class A
- FCC Part 15 Class A
- EN 55022 Class A
- ICES-003 Class A
- AS/NZS 3548 / EN55022 Class A
- EN 61000-3-2, EN 61000-3-3
- VCCI Class A

Immunity

- EN 55024: 1998
- EN 61000-4-2 to 61000-4-6, EN 61000-4-8, EN 61000-4-11

Safety Agency Certifications

- UL 60950
- IEC 60950-1:2001; all national deviations
- EN 60950-1: 2001; all deviations
- CAN/CSA-C22.2 No. 60950-1-03
- NOM-019 SCFI, Mexico;
- AS/NZ TS-001 and 60950:2000, Australia
- UL-AR, Argentina
- UL-GS Mark, Germany
- EN 60825-1 Laser, EN60825-2 Laser
- CDRH Laser

Warranty

1 year on hardware, 90 days on software
Additional and optional support available

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